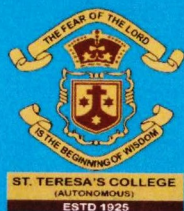


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Tools and Techniques



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DEVELOPING PARTICIPATORY FISHERIES RESOURCE MANAGEMENT (PFRM) PRACTICES TOWARDS SUSTAINABLE FISHERIES

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Introduction

*“People are entitled to a healthy and productive life in
harmony with nature” (Rio declaration)*

Fisheries sector plays an imperative role in the socio-economic development of any country and became integral part of coastal lives. This sector contributes largely towards food, nutritional and livelihood security, employment generation, and brings foreign exchange to our country through exports. Most significantly it is the source of livelihood for a large segment of economically backward population of the country. Nevertheless, fisheries sector is a complex system which involves varying spatio-temporal resource endowments with diversified stakeholders. Fishery resources are rival in nature, as their consumption reduces the supply for others, but they are not an excludable, being it a common resource. Moreover, when the exploitation rate of fishery resource overwhelms the recruitment rate, any effort to harvest additional benefits directly harms the livelihood security of the poor. Fisheries resources reached to a stage at which utilization is faster than it can be replenished and thereby necessitate the immediate need to develop appropriate sustainable fish management approach

Natural Resources –The dilemma in management

Globally, over fishing, deforestation and excessive releasing of carbon dioxide, being the pressing concerns of today, is having global impact on next generations as well. Hence the concern for holistic approach towards the sustainable management of natural resources has been on the rise in this milieu of increased competition which is triggered by population pressure. Since the resource availability and quality is at menace due to resource depletion, its

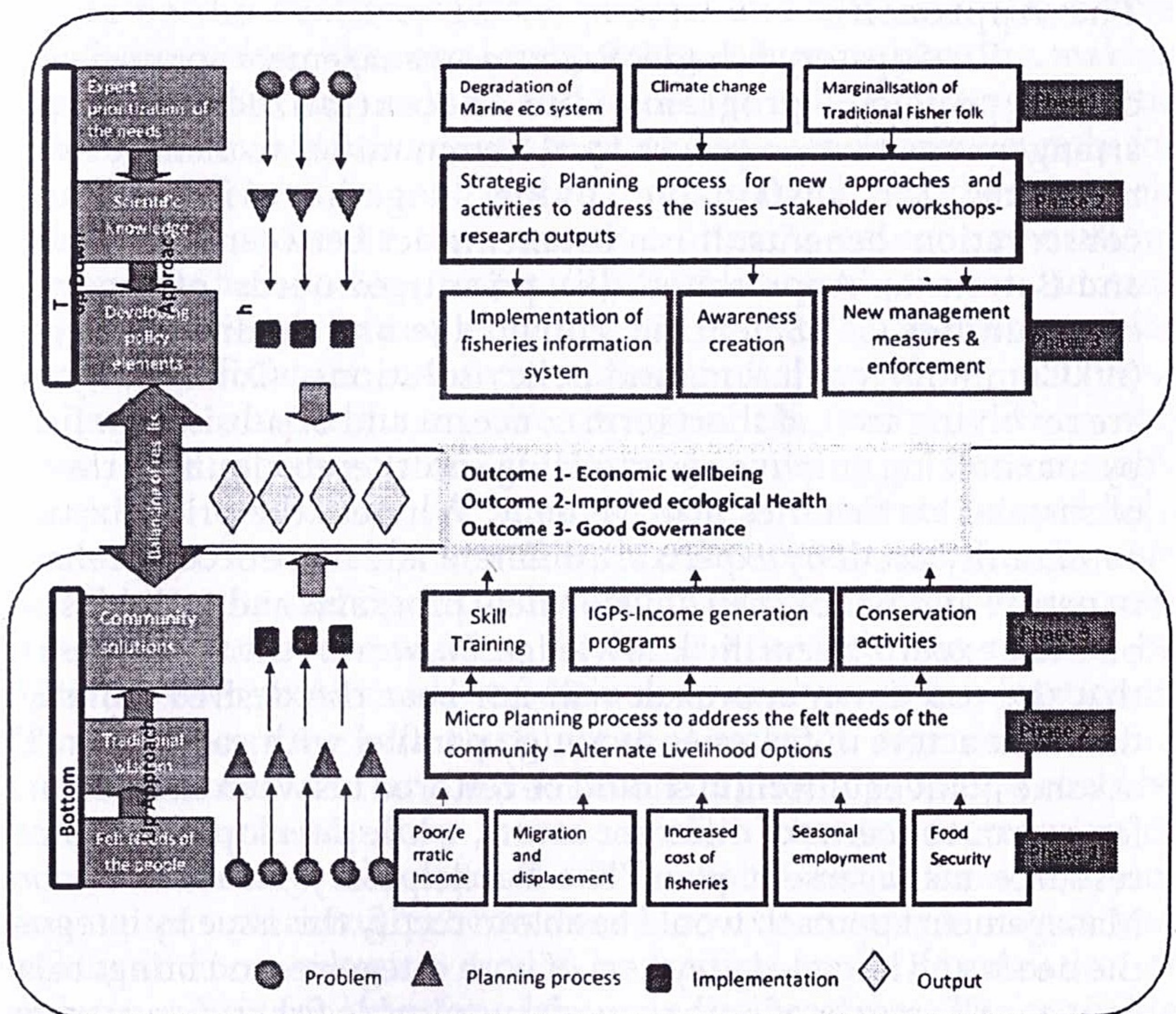
adversities are evident in all sectors including fisheries, forestry, water, agriculture, and land resource sector. The depletion of these natural resources has devastating ecological, economic and social impacts as it disturb the ecosystem balance, there by hamper the provisions of ecosystem services to the humanity. Thus there is an increased need for having sustainable management approach in conservation, development and management of natural resources in curbing resource depletion, restoration of degraded resources and ensuring the optimal use of resources for the benefit of present and future generations.

Fisheries Management in India

The dependency on fisheries resources among different stakeholders varies and the resource utilization and exploitation pattern bank on their ability to harvest these resources. A fishery can be defined as the exploitation of living aquatic resources including fish, which account for the bulk of resources, invertebrates and other aquatic insects held in some form of common or open access property regime. (Smith et al, 2004). Open accessibility into fisheries tends to draw an excessive amount of effort for maximum exploitation which would lead to overcapitalization, resulting in decrease in the yield rates, unprofitability of efforts and threatening the food security as well (Manual on fishery statistics, 2011) (Ikiara 1999). In addition, any disturbances in the ecosystem services provided by coastal waters largely affects traditional fisherfolk, being the primary beneficiaries than any others. Moreover, fishers possess user rights rather than property rights; they don't prioritize fisheries resource management and responsible fishing practices in their management agenda. The consequent uncertainties make it imperative that the resources have to be scientifically developed, monitored and managed. There exists widening gap between demand and supply of fish in India creating concerns for food security and livelihood. (Shyam *et.al*, 2013, 2014) Since the level of dependency of different stakeholders on fisheries resources vary, it is hard to facilitate the process of sustainable fishery resource management among different actors having conflicting interests using a single framework approach. Moreover the intricacies in the scientific and social process of these issues demand the collaboration of different stakeholders including local authorities, scientific experts, research and technical institutions, user groups, and non-government organisations in the particular geographical and ecological domain. Evidences from previous studies reported that

the local solutions are more effective to curb these issues than standardized single approach (Kathiresan, ND).Fishery management is a global concern and its solutions are local. Though the local solutions would be highly specific and working on a smaller scale with low pace, the cumulative effects would have greater effect on sustainability at global level. The knowledge gained from other sectors including forestry and water sector reinforces the demand for decentralized management of resources towards achieving sustainability. Hence it is the need of the hour to have collective approach that brings the participation of different actors in developing and implementing fisheries management plan.

Methodological frame work



However it is quite challenging to develop such plan, as there is limited scope for immediate economic benefits available to different stakeholders by participating in conservation, there is a need to manage the coastal fisheries resources to ensure sustainable livelihood of coastal fisher folk along with the food security and nutrition supply to the consumers. Many alternative measures developed towards sustainable fisheries management through co-operatives, co-management, responsible fisheries practices, haven't produced desirable results to the extent anticipated. Thus there is an increased significance for location specific solutions through Participatory Fisheries Resource Management (PFRM) which will be a viable model for sustainable management of fisheries resources.

The Approach

Participatory fisheries Resource management approach would cover policies, programs and decentralized institutional arrangements that empower local communities to manage fisheries resources for sustainable living, together with enhancing conservation benefits. It is a balancing act between (i) 'Top Down and Bottom up Approaches', (ii). prioritized needs of experts and communities, (iii) Scientific knowledge and traditional wisdom (iv). Community solutions and policy solutions. Community needs are revolving around short term concerns and of subsistence fishing, by maximizing output or minimizing cost thereby limiting the scope of sustainable fisheries management. Whereas the prioritization of community needs by experts are different and more of comprehensive in nature and hence they develop new programs and activities based on their expert/ scientific knowledge. However, the evidences show that the top down approach will not bear the desired fruits since different actors in fisheries sector go parallel with each other. Thus at some point equilibrium should be restored between short term and long term concerns of different actors, while developing sustainable resource management plan. The Participatory Fisheries Resource Management approach would be able to rectify this issue by integrating the needs and knowledge system of both categories and brings balance between the results of both towards sustainable fisheries management practices. More or less it also can be termed as co management in which community and government shares responsibilities towards sustainable results

The process of BOR Approach

The initiation of the process could be done with identification and prioritization of the problems by the community. It is assumed that community could conceive change in ecosystem services in the context of changing climatic conditions only in terms of their immediate problems like reduction in their income, seasonality of employment, increased fishing cost, food security and so on. Since most of their problems are linked with their income and employment, subsequent planning process should be revolved around exploring possibilities through alternative livelihood options available. Iterative processes of planning and actions can be considered as the main characteristic of the whole process at community level. Due care has to be taken to ensure the participation of all the community members regardless of the gender and religion.. Implementation of the planned activities would be the next step in the process and different alternative livelihood options like vermi composting, mangrove planting, making paper bag units, cage culture and so on has to be encouraged in the context of non availability of adequate fisheries resource supply for traditional fisherfolk, which would act as shock absorbers in their lean period and even have positive impacts on eco-restoration. Concurrent monitoring process is also vital to rectify the concomitant problems emerging during the process. Moreover, the felt need for sustainable fisheries resources management should be inculcated among the people during the course of this activity. Thus, the knowledge generated through learning by doing, and the outlook developed towards conservation of natural resources, would help them to become change agents within the society and thereby able to influence the authorities to demand their rights over the resources. Similar to the above process the latter approach also need to be initiated with problem identification and analysis of the situation in broader perceptive with the support of research organisations and line departments working in this field. The general problems could be identified at the top may include climate change, degradation of ecosystem, marginalisation of traditional fisher folks and so on. Subsequent planning process based on the research output and stakeholder consultation would be leading to the formulation of actions, policies or laws for addressing the problems. The available service delivery mechanisms would be utilized for the implementation of formulated actions and policies. More precisely, since the fishers do not have control over the fishing grounds, their passiveness could

be evident in conservation aspects and they do not even follow responsible fishing practices. Hence new initiatives in providing some form of property rights and control over the fishing ground through new policies to the communities would generate community ownership and there by easily make the fishers involve in conservation activities. Once community gained the ownership over the fishing ground, their involvement in conservation and development process would be ensured as it provide direct benefit to their lives. Success stories from forestry sector reinforce the fact that the ownership over the resources itself instigates the communities' pro-activeness in conservation activities leading to a situation where their immediate and future needs would be satisfied (Antony, *et.al*, 2014). Moreover new initiatives for fishery resource development and community managed fisheries information systems also would be considered concurrently. The enforcement of rules and regulations is vital in the management of fishery resources and hence the role of line department in this process has to be ensured. End results of both these approach would be leading to a situation where people will get adequate income for their living, better health of the ecosystem and the establishment of good governance system

Conclusion

The PFRM approach through Balancing Of Result (BOR) model of development conceptualized the importance of creation of stake holder knowledge base which can instigate further actions and generation of knowledge in resource conservation and management along with supporting programs and policies from the government. The philosophy unveiled or the theory evolved with the approach underscores the importance of intellectual involvement and upholding of the ideals of democratic involvement of the community in the process which can eventually lead to the formation of community governments conferring the rights to use, and protect the natural resources by themselves. Moreover this two way approach synergizes two parallel needs, approaches, and knowledge towards single goal of making sustainable development and managing of fisheries resources. Finally, paradigm shift in the role government from being provider to facilitator, is required to have sustainable results in the fisheries sector

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